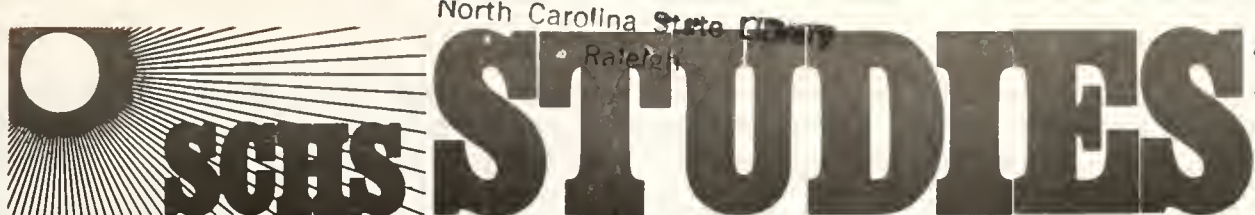


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PREDICTING INFANT MORTALITY:
AN EVALUATION OF APGAR SCORES

INTRODUCTION

The Apgar scoring system is a method of evaluating and rating newborn infants with respect to their physical condition at one minute and five minutes after birth. It was developed in 1952 by Dr. Virginia Apgar for the purposes of "predicting survival, comparing different methods of resuscitation, and comparing perinatal experiences in different hospitals" (1). The system is based on the observation, and the subsequent rating, of five selected signs of an infant's physical health at birth. These signs are heart rate, respiratory effort, muscle tone, reflex response, and color. Each sign is given a score of 0, 1 or 2 based on the performance of the newborn (see Table 1). The Apgar score is the sum of these five 0-2 scores and ranges from 0 to 10, with 10 being the optimum. In the literature, Apgar scores of 0-3 have generally represented poor condition, 4-6 fair condition, and 7-10 good condition (1, 3-11, 15-16).

In 1978 North Carolina along with 37 other states and the District of Columbia began to routinely record one- and/or five-minute Apgar scores on birth certificates (15). These scores were added to the certificate with the hope that they provided additional information, although subjective, on the health of infants at birth and on their chances of survival, i.e., information above and beyond that available in other after-birth indicators. Numerous studies have been performed which have shown strong associations among Apgar score, birth weight, mortality, and some measures of infant morbidity (1, 3-11, 15). Some have suggested that Apgar scores, particularly the five-minute scores, in combination with other known birth characteristics could be used to predict survival (3, 5-6).

Table 1

The Apgar Scoring Method

Sign	Score		
	0	1	2
Heart Rate-----Absent		Below 100/min.	Over 100/min.
Respiratory Effort-----Absent		Minimal; weak cry	Good; strong cry
Muscle Tone-----Limp		Some flexion of extremities	Active motion; extremities well-flexed
Reflex Irritability-----No response		Some motion	Cry
Color-----Blue or pale		Body pink; extremities blue	Pink

Source: Apgar, V., et al: Evaluation of the Newborn Infant-Second Report, Journal of American Medical Association, 168 (15): 1985-1988, December 1958.